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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/760,883	01/17/2001	Hiroyuki Shibata	23.1093	4981

21171 7590 07/11/2006

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EXAMINER

KOVALICK, VINCENT E

ART UNIT PAPER NUMBER

2629

DATE MAILED: 07/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/760,883

Applicant(s)

SHIBATA ET AL.

Examiner

Vincent E. Kovalick

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 March 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3,5-7,9-11,13-16,18-20,22-24,26-29 and 31-62 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7,11,20,24 and 48-52 is/are allowed.
- 6) ☒ Claim(s) 1,2,5,6,10,13-15,18,19,22,23,26-28,31-39,41-47 and 53-62 is/are rejected.
- 7) ☒ Claim(s) 3,9,16,29 and 40 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 January 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Please Note*

USPTO Advisor Action dated May 16, 2006 is in error in that it referred to Applicants Amendment dated March 21, 2006 as responding to a Final Office Action; when in fact said amendment responded to the **non-final** action of October 21, 2005. Said Advisory Action is herewith withdrawn.

### *Response to Amendment*

1. This Office Action is in response to Applicant's Amendment dated March 21, 2006 in response to USPTO Non-Final Office Action dated October 21, 2005.

Applicant's Amendments to claims 1, 10, 14, 19, 27 and 35-39 and the addition of new claims 53-62 have been noted and entered in the record.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-2, 6, 10, 14-15, 19, 23, 27-28, 32-33 and 34-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuboyama et al. (USP 5,995,076) taken with Williams et al. (USP 6,397,343). in view of Kawata (USP 6,076,171).

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Relative to claims 1, 6 10, 14, 19, 23, 27, 32-33 and 34-39, Tsuboyama et al. **teaches** a display apparatus using different types of drive waveforms alternately (col. 2, lines 46-67 and col. 3, lines 1-25); Tsuboyama et al. further **teaches** a driving method for a display apparatus (col. 5, lines 53-67 and col. 6, lines 1-3); it being understood that the driving technique taught by Tsuboyama et al. is applicable to display devices of various technologies including LCD and Plasma technology.

Tsuboyama et al. **does not teach** said driving method wherein a frequency of a clock signal, used to drive a display panel, is continuously varied to reduce noise output of the display panel, and said display panel is driven with said frequency varying clock signal.

Kawata **teaches** an information processing system with means for varying the system clock frequency (col. 2, lines 34-67 and col. 3, lines 1-7); Kawata further **teaches** the system clock signal being continuously varied (col. 11, lines 12-16).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to provide for the device as taught by Tsuboyama et al the feature as taught by Kawata in order put in place a the clock generation signal that can generate a variety of clock signal frequencies as required by the system.

Tsuboyama et al. in view of Kawata **does not teach** wherein a frequency of a clock signal, used to drive a display panel, being continuously varied to reduce a noise output of the display panel, and said display panel is driven with said frequency varying clock signal.

Williams et al. **teaches** a system for dynamic clock frequency adjustment for a graphics subsystem (col. 3, lines 59-67 and col. 4, lines 1-63); Williams et al. further **teaches** (col. 15, lines 8-15 and Abstract); wherein a frequency of a clock signal, used to drive a display panel,

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being continuously varied to reduce a noise output of the display panel, said panel, and said display panel is driven with said frequency varying clock signal (col. 15, lines 8-15 and Abstract) It being understood the display panel noise is manifested by various amounts of flicker in the displayed image, and that the amount of noise (flicker) that is present is a function of the frequency at which the image is presented to the display. It would then be obvious to a person of ordinary skill in the art that with the means, as taught by Tsuboyama et al. taken with Williams et al. in view of Kawata, to vary the frequency of the clock signal used to drive the display panel, if varied in the proper frequency range, the noise reduction (including peak noise) in the displayed image would be reduced.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to provide for the device as taught by Tsuboyama et al. in view of Kawata the feature as taught by Williams et al. in order to put in place means to generate the frequency varying signals that drive the display panel to in turn reduce the noise generated in presenting the image on the display panel.

Regarding claims 2, 15 and 28 Williams et al. further **teaches** the driving method for a display apparatus wherein the clock signal used to drive said display panel is a source clock signal of said display apparatus (col. 15, lines 8-15).

4. Claims 5, 13, 18, 22, 26 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuboyama et al. taken with Williams et al. in view of Kawata as applied to claims 1, 10, 14, 19, 23 and 27 respectively in item 3 hereinabove, and further in view of Tanaka (USP 6,130,420).

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Relative to claims 5, 13, 18, 22, 26 and 31, Tsuboyama et al. taken with Williams et al. in view of Kawata **does not teach** a display apparatus wherein during a quiescent period, said clock generating circuit performs a control of said clock signal used to drive said display panel.

Tanaka et al. **teaches** an image sensing apparatus and a method for driving said apparatus (col. 1, lines 63-67, col. 2; lines 1-67 and col. 3, lines 1-18). Tanaka et al. further **teaches** said display apparatus wherein during a quiescent period, said clock generating circuit performs control of said clock used for driving said display panel (col. 2, lines 31-67 and col. 3, lines 1-2).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to provide to the device as taught by Tsuboyama et al. taken with Williams et al. in view of Kawata, the feature as taught by Tanaka et al. in order to permit the clock generating circuit to exercise control of the clock used for driving the display panel only during a quiescent period so as to not interfere with other functions being performed relative to the display panel during the non-quiescent periods.

5. Claims 41, 42, 43, 44, 45, 46 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuboyama et al. taken with Williams et al. in view of Kawata as applied to claims 10, 19, 23, 34, 35 and 38, respectively (with both claims 43 and 47 being applied to claim 23) in item 3 hereinabove, and further in view of Jagdt (DE 4112672A1).

Regarding claims 41-47, Tsuboyama et al. taken with Williams et al. in view of Kawata **does not teach** a display apparatus wherein the clock signal time switched between said at least two frequencies in accordance with the time conditions is periodically time switched between said at least two frequencies to reduce the peak nose output of the dipay panel

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Jugdt **teaches** a display apparatus wherein the clock signal time switched between said at least two frequencies in accordance with the time conditions is periodically time switched between said at least two frequencies to reduce the peak noise output of the display panel (Abstract).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to provide to the device as taught by Tsuboyama et al. taken with Williams et al. in view of Kawata the feature as taught by Jagdt in order to reduce the noise output of the display panel.

6. Claims 53-54 and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuboyama et al. taken with Williams et al. in view of Kawata as applied to claim 6 in item 3 hereinabove, and further in view of Aoki.

Relative to claims 53-54, Tsuboyama et al. taken with Williams et al. in view of Kawata **does not teach** applying a drive signal having a rectangular shape to each electrode of said panel so as to display with emission.

Aoki **teaches** a display apparatus (col. 2, lines 56-67 and col. 3, lines 1-60); Aoki further **teaches** applying a drive signal having a rectangular shape to each electrode of said panel so as to display with emission (col. 3, lines 46-55).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to provide to the device as taught by Tsuboyama et al. taken with Williams et al. in view of Kawata the feature as taught by Aoki in order to facilitate optimizing the speed at which the frequency of the driving signal can change from one frequency to another.

7. Claims 55-56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuboyama et al. taken with Williams et al. in view of Kawata as applied to claim 14 in item 3 hereinabove, and further in view of Aoki.

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Regarding claims 55-56, Tsuboyama et al. taken with Williams et al. in view of Kawata **does not teach** applying a drive signal having a rectangular shape to each electrode of said panel so as to display with emission.

Aoki **teaches** applying a drive signal having a rectangular shape to each electrode of said panel so as to display with emission (col. 3, lines 46-55).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to provide to the device as taught by Tsuboyama et al. taken with Williams et al. in view of Kawata the feature as taught by Aoki in order to facilitate optimizing the speed at which the frequency can change from one frequency to another.

8. Claim 58 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuboyama et al. taken with Williams et al. in view of Kawata as applied to claim 35 in item 3 hereinabove, and further in view of Aoki.

Regarding claim 58 Tsuboyama et al. taken with Williams et al. in view of Kawata **does not teach** applying a drive signal having a rectangular shape to each electrode of said panel so as to display with emission.

Aoki **teaches** applying a drive signal having a rectangular shape to each electrode of said panel so as to display with emission (col. 3, lines 46-55).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to provide to the device as taught by Tsuboyama et al. taken with Williams et al. in view of Kawata the feature as taught by Aoki in order to facilitate optimizing the speed at which the frequency can change from one frequency to another.



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9. Claim 59 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuboyama et al. taken with Williams et al. in view of Kawata as applied to claim 38 in item 3 hereinabove, and further in view of Aoki.

Regarding claim 59 Tsuboyama et al. taken with Williams et al. in view of Kawata **does not teach** applying a drive signal having a rectangular shape to each electrode of said panel so as to display with emission.

Aoki **teaches** applying a drive signal having a rectangular shape to each electrode of said panel so as to display with emission (col. 3, lines 46-55).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to provide to the device as taught by Tsuboyama et al. taken with Williams et al. in view of Kawata the feature as taught by Aoki in order to facilitate optimizing the speed at which the frequency can change from one frequency to another.

10. Claim 60 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuboyama et al. taken with Williams et al. in view of Kawata as applied to claim 39 in item 3 hereinabove, and further in view of Aoki.

Regarding claim 60 Tsuboyama et al. taken with Williams et al. in view of Kawata **does not teach** applying a drive signal having a rectangular shape to each electrode of said panel so as to display with emission.

Aoki **teaches** applying a drive signal having a rectangular shape to each electrode of said panel so as to display with emission (col. 3, lines 46-55).

It would have been obvious to a person of ordinary skill in the art at the time of the invention

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to provide to the device as taught by Tsuboyama et al. taken with Williams et al. in view of Kawata the feature as taught by Aoki in order to facilitate optimizing the speed at which the frequency can change from one frequency to another.

11. Claims 61-62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuboyama et al. taken with Williams et al. in view of Kawata as applied to claim 1 in item 3 hereinabove, and further in view of Aoki.

Regarding claims 61-62, Tsuboyama et al. taken with Williams et al. in view of Kawata **does not teach** a plasma display apparatus having a display panel comprising a display data control unit which controls input display data according to a first clock; and a drive control unit which generates a drive signal having a rectangular shape according to a second clock, the drive signal being applied to each electrode of the display panel when displaying with emission.

Aoki **teaches** a display apparatus having a display panel comprising a display data control unit which controls input display data according to a first clock; and a drive control unit which generates a drive signal (col. 7, lines 33-67; col. 8, lines 1-35 and Fig. 6) having a rectangular shape according to a second clock, the drive signal being applied to each electrode of the display panel when displaying with emission (col. 3, lines 46-55). It being well understood in the art that appropriate clock signals must be generated by the clock signal generation means, to control the sequence of signal flow and signal format to the display panel.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to provide to the device as taught by Tsuboyama et al. taken with Williams et al. in view of Kawata the feature as taught by Aoki in order to facilitate optimizing the speed at which the frequency can change from one frequency to another.

*Allowable Subject Matter*

12. Claims 3, 9, 16, 29 and 40 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Relative to claims 3, 16 and 29, the major difference between the teachings of the prior art of record (USP 6,037,917, Kawakami and USP 6,130,420, Tanaka et al.) and that of the instant invention is that said prior art of record **does not teach** the driving method for a plasma display apparatus wherein the frequency of the clock signal used to drive a display panel continuously varies within a range of plus or minus 1 percent of a reference frequency.

Regarding claim 9, the major difference between the teachings of the said prior art of record and that of the instant invention is that said prior art of record **does not teach** the said driving method for a plasma display apparatus wherein a control of said clock signal used to drive said display panel is performed during a quiescent period.

Relative to claim 40, the major difference between the teachings of the said prior art of record and that of the instant invention is that said prior art of record **does not teach** the said driving method for a plasma display apparatus wherein the switching of the clock signal between the at least two frequencies in accordance with the time conditions comprises periodically switching the clock signal to reduce the peak noise output of the display.

13. Claims 7, 11, 20, 24, and 48-52 are allowed.

14. The following is an examiner's statement of reasons for allowance:

Relative to claims 7, 11, 20, 24 and 48-52 the major difference between the teachings of the said prior art of record and that of the instant invention is that said prior art of record **does not teach a**

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driving method for a plasma display apparatus having a display panel, wherein a peak noise output of the display panel is reduced by sequentially switching a clock signal, used to drive the display panel, between at least two frequencies, said two frequencies lying within plus or minus 1 percent of a reference frequency being set for said clock signal used to drive said display panel.

***Response to Applicant's Remarks***

15. Applicant's arguments filed March 21, 2006 have been fully considered but they are not persuasive.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation for rejection is found in the knowledge generally available to one of ordinary skill in the art.

Regarding Applicant's remarks relative to claims 1-2, 10, 14-15, 19, 27-28 and 35-39, that the Tsuboyama (USP 5,995,076) reference does not teach "reduce noise" This limitation was introduced in the current amendment, the Tsuboyama reference is used to teach the driving method of a display device (col. 5, lines 53-67 and col. 6, lines 1-3)

Relative to Applicant's comments regarding Williams (USP 6,397,343), Williams teaches

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adjusting a clock frequency in a range of frequencies of a variable clock pulse generator wherein the clock signal is used to drive an image generation system (col. 15, lines 8-15 and Abstract). This feature is consistent with the language of claim 1, which teaches a frequency of a clock signal used to drive an image generation device.

Regarding Applicant's remarks relative to the Kawata reference (USP 6,076,171), Kawata teaches a system clock of continuously varying frequencies (col. 11, lines 12-16), the resulting signals to be transferred to a display device (Fig. 6, item 22).

In a like manner, Tanaka et al. (USP 6,130,420) teaches elements related to image generation and display (col. 2, lines 32-67 and col. 3, lines 1-20 and Abstract).

In that each of the prior art references used have a comparable object of producing a quality image, they are in that respect analogous.

The Nakata 9USP 5,206,729) and Cooper (UJSP 4,305,091) references are not used as prior art in this Action.

#### ***NUMBERING OF CLAIMS 37 CFR 1.126***

16. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claims 56-61 have been renumbered 57-62 respectively. As submitted, the listing of claims had two claims listed as number 56.

***Conclusion***

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U. S. Patent No.	5,917,461	Sakami et al.
U. S. Patent No.	5,748,165	Kubota et al.
U. S. Patent No.	3,889,225	McKenzie et al.

***Final Rejection***

18 Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

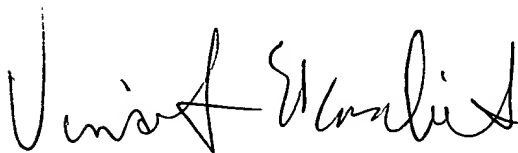
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***To Respond***

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vincent E. Kovalick whose telephone number is 571-272-7669. The examiner can normally be reached on Monday-Thursday 7:30- 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on 571-272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Vincent E. Kovalick  
July 5, 2006



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